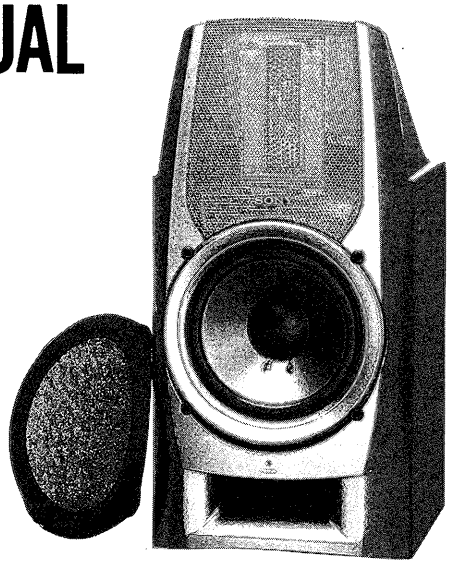
SA-EX200

SERVICE MANUAL



AEP Model
UK Model
E Model

This set is the speaker system in MHC-EX90/EX100AV.

SPECIFICATIONS

System	Active speaker, 2-way bass reflex
Speaker units	
	Woofer : 17 cm dia., cone type
	Tweeter : 2.5 × 10 cm, electrostatic type
Rated impedance	
	6 ohms
Power requirement	
	220 - 230 V AC, 50/60Hz (AEP, German, Italian, UK model)
	110 - 120 V/220 - 240 V AC, 50/60Hz (E, Singapore model)
Continuous RMS power output	
	Tweeter : 2 W (25 ohms at 5kHz, DIN)
	2 W (25 ohms at 5kHz, 10% THD)
	2 W (25 ohms at 3,000Hz - 20kHz, 0.8% THD)
Music power output	
	Tweeter : 4 W (6 ohms at 5kHz, 10% THD)
Power consumption	
	10 W
Dimensions	
	Approx. 220 × 455 × 305 mm
	($8\frac{3}{4} \times 18 \times 12\frac{1}{8}$ in) (w/h/d)
	incl. projecting parts and controls
Mass	Approx. 7.5 kg (16 lb 8 oz)

Design and specifications are subject to change without notice.

SPEAKER SYSTEM

SONY®

TABLE OF CONTENTS

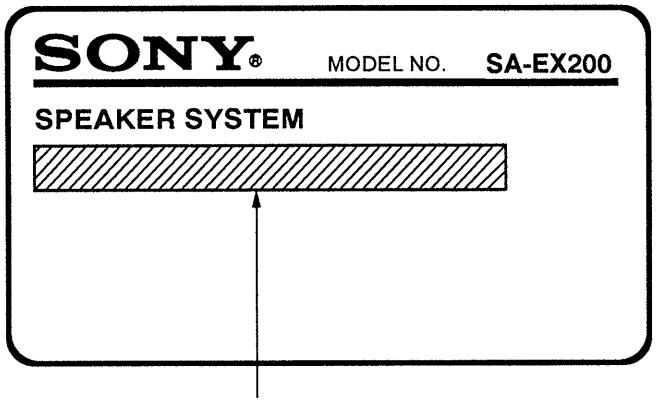
Section *Title* *Page*

1. DIAGRAMS
1-1. Printed Wiring Boards ····· 3
1-2. Schematic Diagram ····· 5

2. EXPLODED VIEW ····· 8

3. ELECTRICAL PARTS LIST ····· 9

MODEL IDENTIFICATION



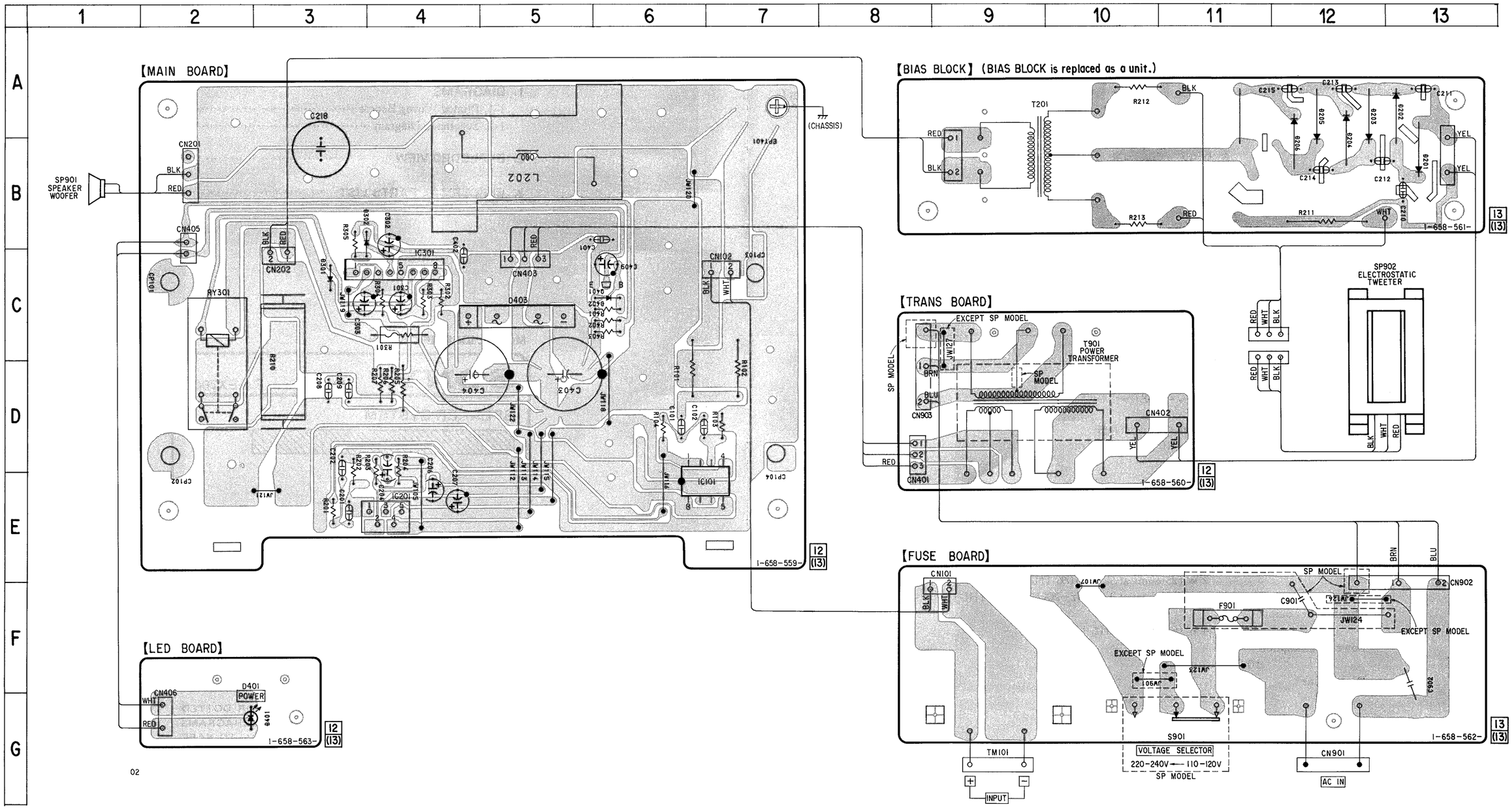
AEP, German, Italian,UK model: 220-230V AC, 50/60Hz 10W
E, Singapore model: 110-120V/220-240V AC,
Adjustable, 50/60Hz 10W

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
DIAGRAMS

1-1. PRINTED WIRING BOARDS

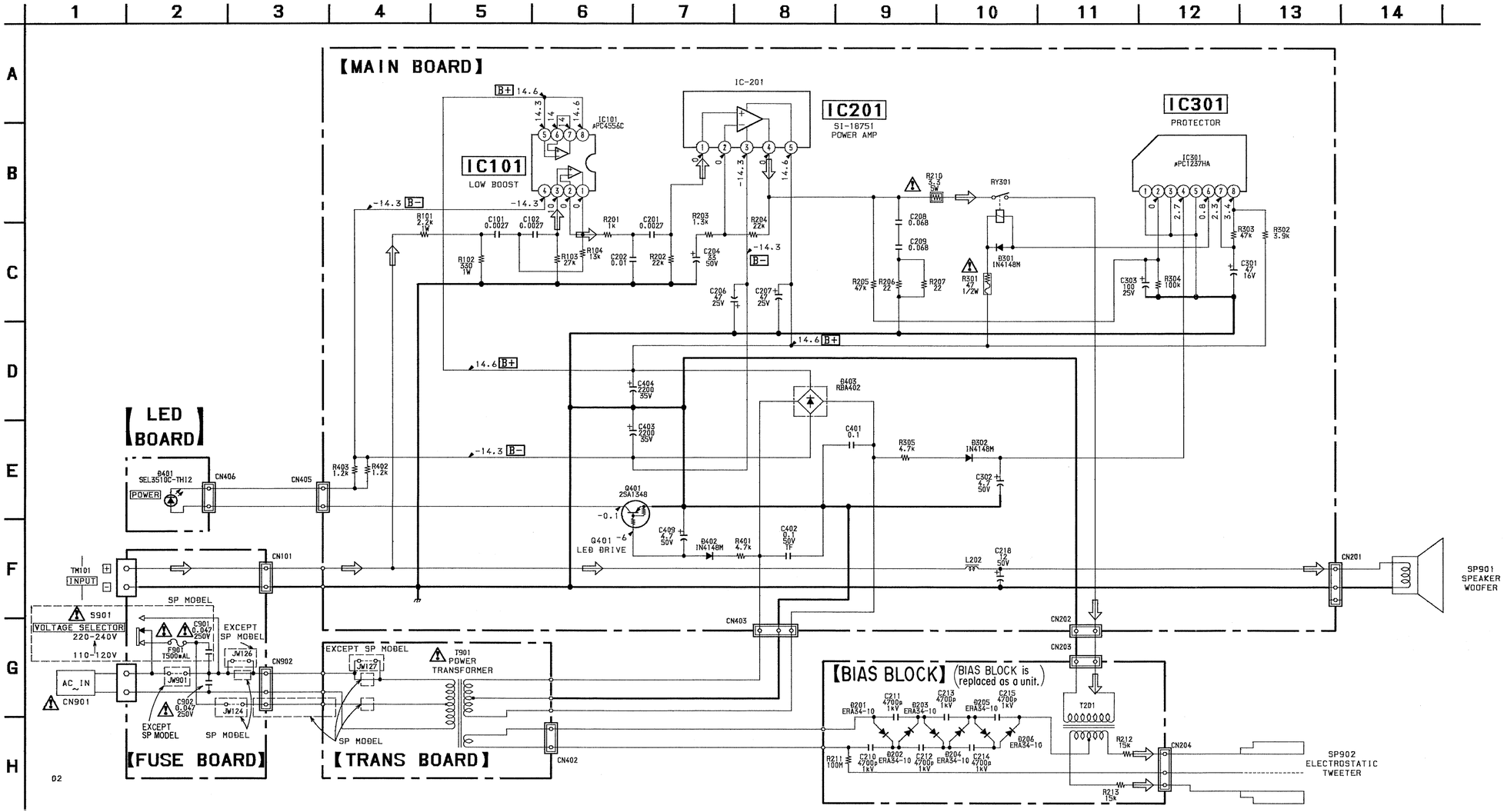


● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D301	C-3	IC101	E-6
D302	B-3	IC201	E-4
D401	G-2	IC301	C-4
D402	C-6		
D403	C-5	Q401	C-6

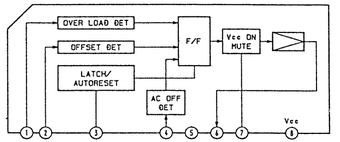
Note:

- O— : parts extracted from the component side.
- ▒▒▒ : Pattern on the side which is seen.
- Abbreviation
  SP : Singapore



● IC BLOCK DIAGRAM

IC301 μPC1237HA



Note :

- All capacitors are in μ F unless otherwise noted. pF: μ μ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- : fusible resistor.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

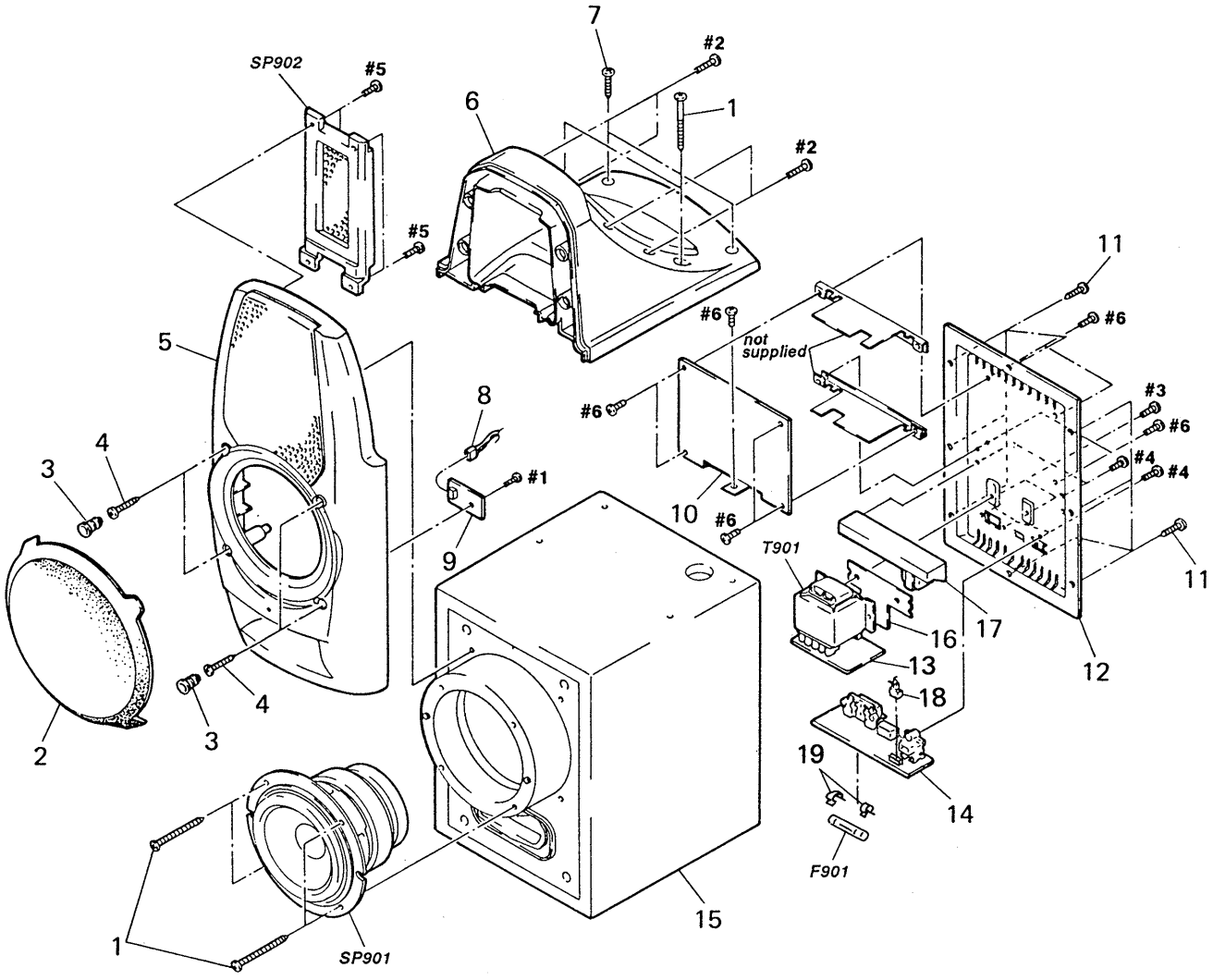
- B+ : B+ Line
- B − : B − Line
- Voltage are dc with respect to ground under no-signal conditions.
- Voltages are taken with a VOM (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- Abbreviation
  SP : Singapore

SECTION 2
EXPLODED VIEW

NOTE :

- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color indication of Appearance Parts
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  SP : Singapore G : German

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.



Ref. No.	Part No.	Description	Remark
1	4-978-600-01	SCREW	
2	X-4946-444-1	FRAME ASSY, GRILLE	
* 3	4-963-075-01	CATCHER	
4	4-962-062-01	SCREW	
5	X-4946-443-4	PANEL ASSY, FRONT	
* 6	X-4946-445-1	CABINET ASSY, REAR	
7	4-874-614-51	SCREW (4) (3.5X20), TAPPING	
8	1-776-057-11	LEAD (WITH CONNECTOR)	
* 9	1-658-563-11	LED BOARD	
* 10	A-4378-781-A	MAIN BOARD, COMPLETE	
11	4-874-614-11	SCREW (4) (3.5X14), TAPPING	
* 12	4-977-511-12	PLATE, REAR (EXCEPT SP)	
* 12	4-977-511-21	PLATE, REAR (SP)	
* 13	1-658-560-11	TRANSFORMER BOARD	

Ref. No.	Part No.	Description	Remark
* 14	1-658-562-11	FUSE BOARD	
* 15	A-4361-788-D	CABINET ASSY, SPEAKER (EXCEPT G)	
* 15	A-4361-883-B	CABINET ASSY, SPEAKER (G)	
16	4-978-511-01	SHEET	
* 17	A-4361-831-A	BIAS BLOCK ASSY	
18	1-690-123-41	REED (WITH CONNECTOR) (2 CORE)	(EXCEPT SP)
19	1-533-293-11	FUSE HOLDER (SP)	
⚠ F901	1-532-279-00	FUSE (T500mAL) (SP)	
SP901	1-505-164-11	SPEAKER (16CM) (WOOFER)	
SP902	1-505-148-11	SPEAKER (TWEETER)	
⚠ T901	1-429-425-11	TRANSFORMER, POWER (EXCEPT SP)	
⚠ T901	1-429-427-11	TRANSFORMER, POWER (SP)	

SECTION 3
ELECTRICAL PARTS LIST

FUSE **LED** **MAIN**

NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE :Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ , for example :
  uA.... : μ A.... , uPA.... : μ PA....
  uPB.... : μ PB.... , uPC.... : μ PC....
  uPD.... : μ PD....
- CAPACITORS
  uF : μ F
- COILS
  uH : μ H
- Abbreviation
  SP : Singapore

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description				Remark
*	1-658-562-11	FUSE BOARD				
		**********				
	1-533-293-11	FUSE HOLDER (SP)				
		< CAPACITOR >				
⚠ C901	1-113-924-11	ELECT	0.0047uF	20%	250V	(SP)
⚠ C902	1-113-924-11	ELECT	0.0047uF	20%	250V	
		< CONNECTOR >				
⚠ CN901	1-526-930-11	INLET, AC (SP)				
⚠ CN901	1-526-931-11	INLET, AC (EXCEPT SP)				
CN902	1-564-321-00	PIN, CONNECTOR 2P (EXCEPT SP)				
CN902	1-564-687-11	PIN, CONNECTOR 3P (SP)				
		< FUSE >				
⚠ F901	1-532-279-00	FUSE (T500mAL) (SP)				
		< SWITCH >				
⚠ S901	1-572-675-11	SWITCH, POWER VOLTAGE CHANGE (SP)				
		< TERMINAL >				
TM101	1-536-707-21	TERMINAL BOARD, PUSH 2P (INPUT)				
**********						
*	1-658-563-11	LED BOARD				
		**********				
		< CONNECTOR >				
CN406	1-764-339-11	PIN, CONNECTOR (PCB)(L TYPE)2P				
		< DIODE >				
D401	8-719-018-46	LED SEL3510C-CD (POWER)				
**********						

Ref. No.	Part No.	Description				Remark
*	A-4378-781-A	MAIN BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C101	1-130-476-00	MYLAR	0.0027uF	5%	50V	
C102	1-130-476-00	MYLAR	0.0027uF	5%	50V	
C201	1-130-476-00	MYLAR	0.0027uF	5%	50V	
C202	1-136-153-00	FILM	0.01uF	5%	50V	
C204	1-126-966-11	ELECT	33uF	20%	50V	
C206	1-124-477-11	ELECT	47uF	20%	25V	
C207	1-124-477-11	ELECT	47uF	20%	25V	
C208	1-136-163-00	FILM	0.068uF	5%	50V	
C209	1-136-163-00	FILM	0.068uF	5%	50V	
C218	1-123-552-00	ELECT	12uF	20%	50V	
C301	1-104-664-11	ELECT	47uF	20%	16V	
C302	1-126-963-11	ELECT	4.7uF	20%	50V	
C303	1-124-478-11	ELECT	100uF	20%	25V	
C401	1-136-165-00	FILM	0.1uF	5%	50V	
C402	1-136-165-00	FILM	0.1uF	5%	50V	
C403	1-124-618-11	ELECT	2200uF	20%	35V	
C404	1-124-618-11	ELECT	2200uF	20%	35V	
C409	1-126-963-11	ELECT	4.7uF	20%	50V	
		< CONNECTOR >				
CN101	1-564-320-00	PIN, CONNECTOR 2P				
CN201	1-564-104-00	PIN, CONNECTOR 3P				
CN202	1-564-320-00	PIN, CONNECTOR 2P				
CN403	1-764-326-11	PIN, CONNECTOR (PCB) (V TYPE)3P				
CN405	1-764-325-11	PIN, CONNECTOR (PCB) (V TYPE)2P				
		< DIODE >				
D301	8-719-987-63	DIODE 1N4148M				
D302	8-719-987-63	DIODE 1N4148M				
D402	8-719-987-63	DIODE 1N4148M				
D403	8-719-025-03	DIODE RBA-402-SL				
		< TERMINAL BOARD >				
EPT401	1-537-770-21	TERMINAL BOARD, GROUND				

MAIN TRANSFORMER

Ref. No.	Part No.	Description			Remark
		< IC >			
IC101	8-759-100-06	IC uPC4556C			
IC201	8-759-502-31	IC SI-18751			
IC301	8-759-111-68	IC uPC1237HA			
		< COIL >			
L202	1-411-560-11	COIL, NETWORK			
		< TRANSISTOR >			
Q401	8-729-900-61	TRANSISTOR DTA114ES			
		< RESISTOR >			
R101	1-215-871-11	METAL OXIDE	2.2K	5%	1W
R102	1-215-866-11	METAL OXIDE	330	5%	1W
R103	1-249-434-11	CARBON	27K	5%	1/4W
R104	1-247-858-11	CARBON	13K	5%	1/4W
R201	1-249-417-11	CARBON	1K	5%	1/4W
R202	1-249-433-11	CARBON	22K	5%	1/4W
R203	1-247-834-11	CARBON	1.3K	5%	1/4W
R204	1-249-433-11	CARBON	22K	5%	1/4W
R205	1-249-437-11	CARBON	47K	5%	1/4W
R206	1-249-397-11	CARBON	22	5%	1/4W
R207	1-249-397-11	CARBON	22	5%	1/4W
⚠ R210	1-219-732-11	RES, METAL PLATE	3.3		
⚠ R301	1-247-735-11	CARBON	47	5%	1/2W F
R302	1-249-424-11	CARBON	3.9K	5%	1/4W
R303	1-249-437-11	CARBON	47K	5%	1/4W
R304	1-249-441-11	CARBON	100K	5%	1/4W
R305	1-249-425-11	CARBON	4.7K	5%	1/4W
R401	1-249-425-11	CARBON	4.7K	5%	1/4W
R402	1-249-418-11	CARBON	1.2K	5%	1/4W
R403	1-249-418-11	CARBON	1.2K	5%	1/4W
		< RELAY >			
RY301	1-515-921-11	RELAY (12V)			
**********					
*	1-658-560-11	TRANSFORMER BOARD			
		**********			
		< CONNECTOR >			
CN402	1-568-226-11	PIN, CONNECTOR 2P			
		< TRANSFORMER >			
⚠ T901	1-429-425-11	TRANSFORMER, POWER (EXCEPT SP)			
⚠ T901	1-429-427-11	TRANSFORMER, POWER (SP)			
**********					
		MISCELLANEOUS			
		**********			
8	1-776-057-11	LEAD (WITH CONNECTOR)			
18	1-690-123-41	REED (WITH CONNECTOR)(2 CORE)			(EXCEPT SP)
SP901	1-505-164-11	SPEAKER (16CM) (WOOFER)			
SP902	1-505-148-11	SPEAKER (TWEETER)			
**********					
		ACCESSORIES & PACKING MATERIALS			
		**********			
⚠	1-765-293-11	CORD, POWER (EXCEPT UK)			
⚠	1-769-312-21	CORD, POWER (UK)			
	1-775-512-21	CORD, SPEAKER CONNECTION			
*	4-979-172-01	CUSHION (UPPER)			
*	4-979-173-01	CUSHION (LOWER)			
*	4-982-441-01	INDIVIDUAL CARTON (EXCEPT SP)			
*	4-982-442-01	INDIVIDUAL CARTON (SP)			
**********					
		**********			
		HARDWARE LIST			
		**********			
#1	7-685-134-19	SCREW +P 2.6X8 TYPE2 NON-SLIT			
#2	7-685-663-79	SCREW +BVTP 4X16 TYPE2 IT-3			
#3	7-682-560-09	SCREW +BVTT 4X6 (S)			
#4	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S			
#5	7-685-650-79	SCREW +P 3X16 TYPE2 NON-SLIT			
#6	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-960-585-11

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

English
96B0277-1
Printed in Japan
©1996.2
Published by Home A&V Products Div.
Quality Engineering Dept.